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Frank S. Caccavale

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EXAMINER

TRUONG, CAMQUY

ART UNIT

PAPER NUMBER

2196

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/722,146	Applicant(s) CACCAVALE, FRANK S.	
	Examiner CAMQUY TRUONG	Art Unit 2196	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6, 10, 12-18, 20-24, 28 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 10, 14, 17, 18, 23, 28, 32, 35 and 36 is/are allowed.
- 6) ☒ Claim(s) 2-4, 6, 12-13, 15-16, 20-22, 24, 30-31, 33-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 2-6, 10, 12-18, 20-24, 28, 30-36 are pending and they are presented for examination. Claims 1, 7-9, 11, 19, 25-27 and 29 have been cancelled.
2. This Office Action is made Final.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 2-4, 6, 20-22 and 24 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Choquier et al. (U.S. 5,774,668).**

Zielinski and Choquier were cited in the last office action.

5. As to claims 2 and 20, Zielinski teaches the invention as claimed including: in a data processing network including distributed processing units, a method comprising:
obtaining a respective utilization value of each distributed processing unit
(calculating weightings associated with the tunnel terminations devices of the set based

Art Unit: 2196

on resource constraints for the tunnel termination devices, col. 2, lines 10-41 / an L2TP Access Concentrator (LAC) calculate the weightings based on resource constraints associated with L2TP Network Servers (LNSs), col. 3, lines 32-39; col. 5, lines 11-18. In order to calculate the weight, the resource constraints are obtained. Zielinski also inherently discloses resource constraints of each termination device is obtained (utilization value of each distributed processing unit is obtaining);

applying a function to the respective utilization value of said each distributed processing unit to obtain a respective weight (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, for example, $\text{Weight (device A)} = 500/500 = 1$, col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18; col. 6, lines 10-23); and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit (allocate the subscriber session to the tunnel termination devices based on the weight, col. 2, lines 3-41; col. 5, lines 8-22; col. 6, lines 57-60).

Zielinski does not explicitly teach wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit. However, Choquier teaches wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each

Art Unit: 2196

distributed processing unit (the CPU LOAD indicates the current load (percentage) of the server 120, col. 10, line 66 – col. 11, line 12; col. 14, line 60 – col. 15, line 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit as taught by Choquier because this allow to dynamically allocate processing resources (such as application servers) to specific on-line services, so that fluctuations in usage levels of specific on-line services can be efficiently accommodated.

6. As to claims 6 and 24, Zielinski teaches the function is selected to provide weights estimated to cause a balancing of loading upon the distributed processing unit (applies the weighted load balancing to select one of the devices , col. 2, lines 10-16; col. 6, lines 49-52).

7. As to claims 3-4 and 21-22, Choquier teaches said each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit (update the CPU load value, col. 15, lines 6- 11).

8. **Claims 12-13, 15, 30-31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Choquier et al. (U.S. 5,774,668), and further in view of Garnett et al. (U.S. 2003/0105903 A1).**

Art Unit: 2196

9. As to claim 12 and 30, Zielinski teaches the invention substantially as claimed including: in a data processing network including a network file server and a plurality of virus checking servers, a method comprising:

the network file server (L2TP Access Concentrator (LAC) obtaining a respective utilization value of each distributed processing unit (an L2TP Access Concentrator (LAC) calculate the weightings based on resource constraints associated with L2TP Network Servers (LNSs), col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18. In order to calculate the weight, the resource constraints are obtained. Thus, Zielinski obviously discloses resource constraints of each termination device is obtain (utilization value of each distributed processing unit is obtaining);

10. the network file server applying a mapping function to the respective utilization value of said each distributed processing unit to obtain a respective weight (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18 ; col. 6, lines 10-23).

Zielinski does not explicitly teach wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit. However, Choquier teaches wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit (the CPU LOAD indicates the current load

Art Unit: 2196

(percentage) of the server 120, col. 10, line 66 – col. 11, line 12; col. 14, line 60 – col. 15, line 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit as taught by Choquier because this allow to dynamically allocate processing resources (such as application servers) to specific on-line services, so that fluctuations in usage levels of specific on-line services can be efficiently accommodated.

Zielinski and Choquier do not explicitly teaches the network file server using the respective weights for the checking servers for weighted round-robin load balancing of checking requests from the network file server to the servers. However, Garnett teaches using the respective weights for the servers for weighted round-robin load balancing of requests from the network file server to the servers (weighted round robin load balancing, paragraphs 216-218).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski and Choquier by incorporating the teaching of the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests

Art Unit: 2196

from the network file server to the virus checking servers as taught by Garnett because this allow to distribute new connections most efficiently as suggest by Garnett.

11. As to claims 13 and 31, Choquier teaches said each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit (update the CPU load value, col. 15, lines 6- 11).

12. As to claims 15 and 33, Garnett teaches the weighted round-robin load balancing performs round-robin load balancing when the weights are equal (paragraph 218, lines 1-6).

13. **Claims 16 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Choquier et al. (U.S. 5,774,668), and further in view of Garnett et al. (U.S. 2003/0105903 A1), as applied to claims 12 and 30 above, and further in view of Kapoor (U.S. 5,884,038).**

Kapoor was cited in the last office action.

14. As to claims 16 and 34, Garnett teaches the respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers (weighted round robin load balancing, paragraphs 216-218) by creating a distribution list containing

Art Unit: 2196

entries indicating the virus checking servers (a circular list available server, paragraph 217).

Zielinski, Choquier and Garnett do not explicitly, the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list.

However, Kapoor teaches the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit (the domain name server returns the IP address of a web server such that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server, col. 5, lines 11-16), and by randomizing the distribution list (the domain name server randomize the list of web server, col. 5, lines 15-16 / the order of all the elements and array A are randomized, col. 5, lines 60-63), and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list (the domain name server receives a resolution request. The domain name server returns the IP address of a web server such that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server. In order to return the IP address

Art Unit: 2196

of a web server to client, the domain name server has to access to web server lists.

Thus, Kapoor teaches accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching Zielinski, Choquier and Garnett by incorporating the teaching of the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list as taught by Kapoor in order to gain the advantage of efficiently utilize the multiple web servers of an Internet host as well as reduce the skewed locking problems such that overall Internet traffic and response times are reduced (col. 2, lines 47-52).

Allowable Subject Matter

15. Claims 5, 10, 14, 17, 18, 23, 28, 32, 35 and 36 are allowed.

Response to Arguments

16. Applicant arguments have been fully considered but they are not persuasive for the reasons set forth in detail below.

The rejection of independent claims 2 and 20 under 35 U.S.C. 103 (a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Choquier et al. (U.S. 5,774,668) is the focal point of the arguments.

a. Applicant argues, on page 2 of the Remarks, that “it should be clear that “resource constraints” as disclosed in Zielinski are not “utilization values”. A “resource constraints does not give any indication of the utilization of the resource”. Examiner respectfully traverses applicant remarks. In col. 2, lines 32-34, Zielinski discloses “the subscriber loading placed on each of the tunnel termination devices can be allocated based on the available computing resources of the devices”. Further, in Col. 5, lines 17-21, Zielinski discloses “a net work device comprises a tunneling module that load balances subscriber sessions across a plurality of tunnel termination devices based on a resource constraint associated with the tunnel termination devices”. The disclosure above, the available computing resource of the tunnel termination devices coupled with the resource constraint associated with the tunnel termination devices, Examiner interprets that Zielinski disclosed the load balancing as disclosed by Zielinski is based on the resource that is currently being used and the available resource for handling the additional load for particular tunnel termination devices. Thus, Zielinski discloses the limitation of “utilization values” as required in claims 2 and 20. Examiner acknowledges that Zielinski fails to specifically teach “wherein the utilization value of said each distributed processing unit is a percentage of

saturation of said each distributed processing unit”, however, the deficiency of Zielinski is remedied by the Choquier reference.

b. Applicant argues, on page 3 of the Remarks, that “neither Zielinski nor Chorquier teaches applying a function to a respective percentage of saturation of each distributed processing unit to obtain a respective weight for said each distributed processing unit; and using the respective weight for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit”. Examiner respectfully traverses applicant’s remarks. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

c. Applicant argues, on pages 6 and 7 of the Remarks, that “The applicant's method monitors distributed performance by collecting performance statistics and does load balancing based on the collected performance statistics. The load balancing reduces dynamic overload conditions because the weighted distribution of work requests to the distributed processing units is based on a percentage of saturation of each distributed processing unit. (See applicant's specification, page 35, lines 2-13.).

It is the percentage of saturation of each distributed processing unit that is indicative of an incipient overload condition that might be avoided by a redistribution of the incoming workload. An incipient overload condition is not indicated by a resource constraint of a distributed processing unit. The resource constraint is not indicative of an incipient overload condition that might be avoided by a redistribution of the incoming workload”.

Examiner respect fully traverses applicant’s remarks. Note that applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Zielinski discloses a load balancing method based on available computing resource and resources constraint, thus, the loading would be proportional to the number of service sessions. Zielinski's method is lacked of the ability to handle relatively dynamic loads by monitoring the utilization values of the resource based on the “percentage of saturation”, therefore, the ability of handling additional loads for each tunnel termination devices is not dynamically presented to the user. However, Choquier discloses a dynamic load balancing method based on monitoring the respective utilization value of each application server loads based on percentage of saturation on the order of every 30 seconds (see col. 2, lines 60-65 and col. 10, line 66 – col. 11, line 12; col. 14, line 60 – col. 15, line 6). Choquier's method can handle relatively static loads and dynamic

Art Unit: 2196

loads by updating the service map more frequently. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Choquier into Zielinski's system in order to gain the advantage of allowing Zielinski's system to handle both static and dynamic loads.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMQUY TRUONG whose telephone number is (571)272-3773. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emerson C. Puente can be reached on (571)272-3645. The fax phone

Art Unit: 2196

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Camquy Truong/
Examiner, Art Unit 2196

/DIEM K CAO/
Primary Examiner, Art Unit 2196